



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,005	02/18/2004	John Zarynow	PP8861	2408

7590 09/22/2005  
Robert A. Elwell  
80 South 8th Street  
Suite 900  
Minneapolis, MN 55402

EXAMINER

DUNWOODY, AARON M

ART UNIT PAPER NUMBER

3679

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/781,005	Applicant(s) ZARYNOW, JOHN	
	Examiner Aaron M. Dunwoody	Art Unit 3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) 45, 47-49, 51, 60 and 61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 7, 14, 15, 22, 26, 28, 52, 54, 55 and 57 is/are rejected.
- 7) ☒ Claim(s) 18, 19, 21, 23 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Continuation of Disposition of Claims: Claims pending in the application are 1-3,6-9,14,15,18,19,21-24,26,28-30,45,47-49,51,52,54,55,57,60 and 61.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6, 7, 15, 22, 26, 28, 52, 54, 55 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 5868443, Ungerman et al in view of US patent 5837181, Leimbacher et al.

In regards to claim 1, Ungerman et al disclose a composite coupling (30) for use in assembling a restrained joint between a plurality of pipes having pipe ends (10, 20) and external complementary restraining grooves axially spaced from the pipe ends, the composite coupling comprising a cylindrical composite body, the cylindrical composite body defining an axis and having a first end, a second end, an exterior surface and an interior surface; a first retainer groove (41) in the interior of the coupling, the first retainer groove being axially spaced from the first end; a first port (32), the first port communicating between the exterior surface and the first retainer groove; a second retainer groove (42) in the interior of the coupling, the second retainer groove being axially spaced from the second end; a second port (34), the second port communicating between the exterior surface and the second retainer groove. Ungerman et al does not disclose the cylindrical composite body comprising a plurality of concentrically arranged layers of wound filaments in a thermoset plastic matrix, each of the layers characterized

by a winding angle opposing the winding angle of the adjoining layers. Leimbacher et al teach a composite body comprising a plurality of concentrically arranged layers of wound filaments in a thermoset plastic matrix, each of the layers characterized by a winding angle opposing the winding angle of the adjoining layers, to produce pipes and protective coverings. As Leimbacher et al relates to thermoplastically formable composite materials, it would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate a composite body with a plurality of concentrically arranged layers of wound filaments in a thermoset plastic matrix, each of the layers characterized by a winding angle opposing the winding angle of the adjoining layers, to produce pipes and protective coverings.

In regards to claim 2, Ungerman et al disclose the coupling further comprising means for sealing the pipes in a restrained joint to maintain a pressurized flow between the pipes through the restrained joint.

In regards to claim 3, Ungerman et al disclose the means for sealing the pipes including providing a seal (38, 39) between each pipe and the interior surface of the coupling.

In regards to claim 6, Ungerman et al disclose means to index a first pipe end so as to position a first complementary retainer groove coincident with the first retainer groove.

In regards to claim 7, Ungerman et al disclose means to index a second pipe end so as to position a second complementary retainer groove coincident with the second retainer groove.

In regards to claim 15, Ungerman et al disclose the retainer grooves being circumferentially arranged about the axis of the cylinder.

In regards to claim 22, Ungerman et al in view of Leimbacher et al disclose the claimed invention except for the pipes to be coupled having an outer diameter of about 16 inches. It would have been an obvious matter of design choice to fabricate the pipes to be coupled with an outer diameter of about 16 inches, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

In regards to claim 26, Leimbacher et al disclose the filaments being glass filaments.

In regards to claim 28, Leimbacher et al disclose the thermoset matrix being epoxy.

In regards to claim 52, Ungerman et al in view of Leimbacher disclose method of assembling a restrained joint comprising the steps of providing a filament-wound composite coupling having a first end with a first retaining groove and a first port communicating with the first retaining groove, and a second end with a second retaining groove and a second port communicating with the second retaining groove;

providing a first pipe with a first complementary retaining groove and a second pipe with a second complementary retaining groove;

providing a first flexible spline and a second flexible spline;

inserting the first pipe into the first end such that the first complementary retaining groove of the first pipe is coincident with the first retaining groove and subsequently inserting the first flexible spline through the first port and into at least a portion of the coincident first complementary retaining groove and first retaining groove so as to axially lock the first pipe to the coupling, and,

inserting the second pipe into the second end such that the second complementary retaining groove of the second pipe is coincident with the second retaining groove and subsequently inserting the second flexible spline through the second port and into at least a portion of the coincident second complementary retaining groove and second retaining groove so as to axially lock the second pipe to the coupling, thereby assembling a restrained joint.

In regards to claim 54, Ungerman et al disclose the filament-wound composite coupling further including O-rings to seal the first and second pipes to the coupling.

In regards to claim 55, Ungerman et al disclose the coupling further including means for indexing the first and second pipes to facilitate establishing coincident relationships for the complementary retaining grooves relative to the retaining grooves of the coupling.

In regards to claim 57, Ungerman et al in view of Leinbacher disclose a pipe system comprising:

a plurality of pipes, each of the pipes of the plurality having two ends and an outward directed complementary retainer groove associated with each end;

Art Unit: 3679

at least one filament-wound composite coupling, the coupling including two ends, two inwardly directed retaining grooves, each of the retaining grooves having a port communicating with the retaining groove,

at least two flexible splines, each spline being insertable into one of the retaining grooves through the associated port-to axially lock a pipe end to the coupling by retaining a coincident relationship between the complementary retaining groove and the retraining groove, thereby defining a restrained joint of the pipe system.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ungerman et al in view of Leimbacher et al, in further view of US patent 6179347, Dole et al.

In regards to claim 14, Ungerman et al in view of Leimbacher disclose the claimed invention except for the first port being tangential to the first retainer groove. Dole et al teach a first port (30) being tangential to a first retainer groove (32) to aid in the ease of installation of the retainer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate a first port tangential to a first retainer groove to aid in the ease of installation of the retainer.



Art Unit: 3679

Claims 1-3, 6-9, 15, 22, 26 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 5758909, Dole et al in view of US patent 5837181, Leimbacher et al.

In regards to claim 1, Dole et al disclose a composite coupling (12) for use in assembling a restrained joint between a plurality of pipes having pipe ends (22) and external complementary restraining grooves axially spaced from the pipe ends, the composite coupling comprising a cylindrical composite body, the cylindrical composite body defining an axis and having a first end, a second end, an exterior surface and an interior surface; a first retainer groove (28) in the interior of the coupling, the first retainer groove being axially spaced from the first end; a first port, the first port communicating between the exterior surface and the first retainer groove; a second retainer groove (28) in the interior of the coupling, the second retainer groove being axially spaced from the second end; a second port, the second port communicating between the exterior surface and the second retainer groove. Dole et al does not disclose the cylindrical composite body comprising a plurality of concentrically arranged layers of wound filaments in a thermoset plastic matrix, each of the layers characterized by a winding angle opposing the winding angle of the adjoining layers. Leimbacher et al teach a composite body comprising a plurality of concentrically arranged layers of wound filaments in a thermoset plastic matrix, each of the layers characterized by a winding angle opposing the winding angle of the adjoining layers, to produce pipes and protective coverings. As Leimbacher et al relates to thermoplastically formable composite materials, it would have been obvious to one having ordinary skill in the art at

Art Unit: 3679

the time the invention was made to fabricate a composite body with a plurality of concentrically arranged layers of wound filaments in a thermoset plastic matrix, each of the layers characterized by a winding angle opposing the winding angle of the adjoining layers, to produce pipes and protective coverings.

In regards to claim 2, Dole et al disclose the coupling further comprising means for sealing the pipes in a restrained joint to maintain a pressurized flow between the pipes through the restrained joint.

In regards to claim 3, Dole et al disclose the means for sealing the pipes including providing a seal (27) between each pipe and the interior surface of the coupling.

In regards to claim 6, Dole et al disclose means to index a first pipe end so as to position a first complementary retainer groove coincident with the first retainer groove.

In regards to claim 7, Dole et al disclose means to index a second pipe end so as to position a second complementary retainer groove coincident with the second retainer groove.

In regards to claim 8, Dole et al disclose the means to index the first complementary retainer groove with the first retainer groove being a pipe stop (20), the pipe stop limiting the depth of insertion of the first pipe into the first end of the composite coupling.

In regards to claim 9, Dole et al disclose the means to index the second complementary retainer groove with the second retainer groove being a pipe stop, the

Art Unit: 3679

pipe stop limiting the depth of insertion of the second pipe into the second end of the composite coupling.

In regards to claim 15, Dole et al disclose the retainer grooves being circumferentially arranged about the axis of the cylinder.

In regards to claim 22, Dole et al in view of Leimbacher et al disclose the claimed invention except for the pipes to be coupled having an outer diameter of about 16 inches. It would have been an obvious matter of design choice to fabricate the pipes to be coupled with an outer diameter of about 16 inches, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

In regards to claim 26, Leimbacher et al disclose the filaments being glass filaments.

In regards to claim 28, Leimbacher et al disclose the thermoset matrix being epoxy.

In regards to claim 29, Dole et al disclose the means for indexing being a snap ring.

In regards to claim 30, Dole et al disclose the snap ring being bonded to the interior surface.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dole et al in view of Leimbacher et al, in further view of US patent 6179347, Dole et al.

In regards to claim 14, Dole et al in view of Leimbacher et al disclose the claimed invention except for the first port being tangential to the first retainer groove. Dole et al '347 teach a first port (30) being tangential to a first retainer groove (32) to aid in the ease of installation of the retainer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate a first port tangential to a first retainer groove to aid in the ease of installation of the retainer.

***Allowable Subject Matter***

Claims 18, 19, 21, 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

Applicant's arguments filed 6/27/2005 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as Leimbacher et al relates to thermoplastically formable composite materials, it would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate a

Art Unit: 3679

composite body with a plurality of concentrically arranged layers of wound filaments in a thermoset plastic matrix, each of the layers characterized by a winding angle opposing the winding angle of the adjoining layers, to produce pipes and protective coverings.

Further, simply that there are differences between two references is insufficient to establish that such references "teach away" from any combination thereof. In re Beattie, 974 F.2d 1309, 1312-13, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992).

In response to Applicant's argument that Leimbacher is concerned with composites used to reduce weight and deal with high acceleration force, and not dealing with high pressures when coupling pipes, it has been held that the mere fact that the reference relied on by the Patent and Trademark Office fail to evince an appreciation of the problem identified and solved by applicant is not, standing alone, conclusive evidence of the nonobviousness of the claimed subject matter. The references may suggest doing what an applicant has done even though workers in the art were ignorant of the existence of the problem. In re Gershon, 152, USPQ 602 (CCPA 1967).

The Applicant argues:

More specifically, as with claim 1, the combination of Ungerman in view of Leimbacher does not teach nor suggest a coupler with a plurality of concentrically arranged layers of wound filaments in a thermoset plastic resin matrix, each of the layers being characterized by a winding angle opposing the winding angle of the adjoining layers.

The Examiner disagrees. As pointed out in the Applicant's arguments, Leimbacher discloses thermoplastically formable composite materials based on polyamide 12

matrix, and producing fiber-reinforced hollow bodies by woven fabric. Therefore, Leimbacher meets the claim limitations.

The Applicant argues:

For that reason, Applicant's Attorney questions the characterization of Ungerman as disclosing any means for indexing." Ungerman does teach, at column 3, lines 26-31, that pipes are inserted until their recesses 51 and 52 approximately match the inner annular recesses 41 and 42 and that one or more splines 36 and 37 can be inserted into through-holes 32 and 34. Ungerman teaching is merely a trial and error system of repetitively attempting to establish a locking relationship until the parts are adequately approximately aligned. A 'means for indexing' would more reasonably include an active means for indexing so as to facilitate and promote and achieve appropriate alignment.

The Examiner disagrees. If the Applicant is attempting to invoke 35 U.S.C. 112, sixth paragraph regarding means-plus-function, his arguments are faulty, because the means is not clearly identified in the specification of the instant application. However, since no function is specified by the word(s) preceding "means," as required by 35 U.S.C. 112, sixth paragraph, any means capable of performing an indexing function will meet the claim limitation; such a means is described in the Applicant's arguments; therefore, the claim limitations are met.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron M. Dunwoody whose telephone number is 571-272-7080. The examiner can normally be reached on 7:30 am - 4:00 pm.

Art Unit: 3679

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on 571-272-7087. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Aaron M Dunwoody  
Primary Examiner  
Art Unit 3679

.amd